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Achievements of Faculty Members

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Number of patents granted*(Applied)	01
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Number of papers published in International Conferences*	-
Number of Books Authored *	03
Number of book chapters authored*	-
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Research Article

Spectral Insights: Bathochromic Shifts in Visible Spectra of Nicotinamide with Ninhydrin

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ABSTRACT

Most of the pharmaceuticals are analyzed using UV-Visible methods due to their simplicity, better understanding for students, and economy. Ammonia and primary amino groups, whenever heated with ninhydrin in the presence of ammonium molybdate, form a rhenium purple color. The simple, precise, and cost-effective UV-Visible method has been developed and validated for the determination of Nicotinamide in bulk drugs. The method is based on the reaction of ninhydrin with amide present in Nicotinamide in the presence of ammonium molybdate to form a blue chromogen, which is determined spectrophotometrically at 761nm. The effects of variables such as temperature, heating time, concentration of colour-producing reagent, and stability of colour were investigated to optimize the procedure. The method is validated for linearity, accuracy, and precision parameters. The rhenium purple color of chromogen is shifted towards longer wavelengths (from 570 nm to 761 nm). Thus, Nicotinamide shows a Bathochromic shift due to the presence of the amide group. This reaction is quantitatively proceeding at $970 \pm 1^\circ\text{C}$ in 5 minutes. Beer Lambert's law is obeyed in the concentration range of 0-125 $\mu\text{g/ml}$ and is described by the regression equation $y = 0.0047x$ with a regression coefficient (r^2) of 0.9997. For Nicotinamide, the value of molar absorptivity and Sandell's sensitivity are $2.3487 \times 10^2 \text{ L/mol/cm}$ and $0.2166 \mu\text{g/cm}^2$, and LOD and LOQ are found to be 0.0238 and $0.0722 \mu\text{g/ml}$, respectively. The statistically validated results indicate that the proposed method is simple, precise, green, and cost-effective.

INTRODUCTION

Nicotinamide (NCT), also called niacinamide, is 3-pyridine carboxamide (Figure. 1-A). NCT is an amide form of nicotinic acid or niacin (Figure 1-

B). NCT is a white crystalline powder or colorless crystals; it has a molecular weight of 122.12 g/mol. It is also one of the hydrophilic B vitamins, called vitamin B₃. Many multivitamins and supplementary pharmaceutical preparations

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Comprehensive Review on Astaxanthin – Sources, Chemistry, Pharmacological Activities, Formulation Strategies, and Therapeutic Applications with marketed formulations:

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Abstract—The wide range of health benefits and variety of Pharmacological activities of carotenoids have made them the focal point of industrial as well as academic research on a global scale. Astaxanthin, a xanthophyll carotenoid renowned for its exceptional antioxidant potency, has attracted widespread scientific and pharmaceutical interest due to its diverse therapeutic activities. This review provides a comprehensive overview of astaxanthin, beginning with its natural and synthetic sources, structural chemistry, and physicochemical properties that influence its biological behavior. The pharmacological profile of astaxanthin including its antioxidant, anti-inflammatory, cardioprotective, neuroprotective, hepatoprotective, ocular, and anticancer effects is critically examined. Special emphasis is placed on advanced formulation strategies such as nanoemulsions, liposomes, polymeric nanoparticles, nanostructured lipid carriers, and microencapsulation systems, which have been developed to overcome astaxanthin's inherent limitations related to poor aqueous solubility, instability, and low bioavailability. Furthermore, the review highlights recent progress in therapeutic applications, preclinical and clinical findings, and commercially available astaxanthin formulations currently marketed for health and wellness. Overall, this work consolidates current knowledge while identifying key research gaps, offering guidance for future development of astaxanthin-based nutraceuticals and pharmaceutical products.

Index Terms—Astaxanthin, ROS. Photoprotection, Antioxidant, Beta carotene.

I. INTRODUCTION

Astaxanthin (AXT) a non-vitamin A and a red-orange carotenoid is a member of the xanthophyll family as it contains oxygen with carbon and hydrogen atoms. It is safe for use and hence classified as “pure anti-oxidants” Astaxanthin is a xanthophyll carotenoid which is found in various microorganisms and marine animals¹.The natural astaxanthin are found more biological and pharmacological actives than synthesis one. It is more active as an anti-oxidant than canthaxanthin, zeaxanthin, lutein, vitamin C, vitamin E and β -carotene⁴.The United States Food and Drug Administration (USFDA) has approved the use of astaxanthin as food colorant in animal and fish feed². And also The European Commission considers natural astaxanthin as a food dye³.This has adopted its consumption and nowadays, it is being widely used as a nutraceutical. Its global market demand is expanding and expected to reach \$2.57 billion worldwide by 2025. Haematococcus pluvialis is a green microalga, which accumulates high astaxanthin content under stress conditions such as high salinity, nitrogen deficiency, high temperature and light⁵⁻⁶.

The interest on natural pigments and high cost of synthetic pigments demand the isolation of astaxanthin from natural sources⁷. The use of astaxanthin as a nutritional supplement has expanded rapidly across foods, feeds, nutraceuticals, and pharmaceuticals. This review summarizes current knowledge on astaxanthin sources, extraction

Integrating Herbal Medicine with Transdermal Technology: A Comprehensive Review

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Abstract—A safe, non-invasive, and patient-friendly substitute for traditional administration methods is provided by herbal transdermal patches, an innovative drug-delivery technique. By avoiding hepatic first-pass metabolism and minimizing gastrointestinal adverse effects, these systems transport phytoconstituents straight through the epidermis into the systemic circulation. In order to maintain controlled, sustained release, a conventional herbal patch is made up of a polymeric matrix, drug reservoir, adhesives, permeability enhancers, and a protective backing layer. Lipid content, blood flow, moisture, pH, and the molecular properties of the herbal medication are among the physicochemical parameters that affect drug transport across the skin via transcellular, intercellular, or appendageal pathways. Although there are some drawbacks such as skin irritation, inconsistent permeability, and expensive formulation costs, transdermal patches have many benefits like increased bioavailability, consistent plasma levels, convenience of administration, and extended shelf life. Pain relief, anxiety, sleeplessness, inflammation, asthma, and quitting smoking are among the uses. Quality and efficacy are guaranteed by thorough examination, which includes thickness, folding endurance, medication content, moisture analysis, in-vitro diffusion, and stability investigations. Herbal transdermal patches have great promise for future therapeutic innovation given the rising demand for natural medicines.

Index Terms—Herbal transdermal patches; Components; Skin permeation; Application; and Future aspects.

I. INTRODUCTION

A transdermal patch is a medicated patch that can administer medication at a predetermined rate through the skin's layers and straight into the bloodstream. The goal of any drug delivery system is to deliver a therapeutic dose of medication to the right location in

the body while maintaining the appropriate level of drug concentration. In order to maintain optimum plasma drug levels for therapeutic efficacy, these systems deliver the drug at the proper rates. Transdermal patch provides constant blood levels, by first pass metabolism, improve patient compliance, and reduce dose dumping. This approach can prevent drug-related side effects, such as stomach discomfort. For transdermal distribution, the medication should have a small molecular size, good solubility in the carrier, short half-life, low dose, and appropriate lipophilicity.¹⁻⁵

1.1 Herbal Transdermal Patch: -

The drug should be delivered at a rate that aligns with the body's needs during the therapy term. Secondly, it should direct the active ingredient of herbal drug to the site of action. This system is known as herbal transdermal drug delivery system. When applied to intact skin, herbal transdermal drug delivery systems (Herbal patches) are self-contained, discrete dose forms intended to administer the medication via the skin at a regulated pace of systemic circulation. A number of benefits make herbal transdermal drug delivery systems attractive, including the ability to administer medications continuously, the avoidance of minimal intestinal irritation, and the avoidance of the inconsistent absorption and metabolic breakdown linked to oral treatments. They have a number of benefits over traditional formulations, including improved drug bioavailability, fewer systemic side effects, steady state drug levels, less frequent dosing, a simpler patient dosage schedule, and less variability in plasma drug levels. Maintaining a high drug concentration within the patch is essential for transdermal drug delivery because it produces a concentration gradient that promotes skin diffusion and guarantees a steady plasma drug level.⁶⁻¹⁰



A COMPREHENSIVE REVIEW HIGHLIGHTING EXTRACTION, PHARMACOKINETICS AND FORMULATION STRATEGIES OF BERBERINE

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Abstract

Berberine is a bioactive isoquinoline alkaloid. mostly separated from the species of Berberis and is well known for its healing adaptability in both modern and traditional medicine. Numerous investigations have shown its range of pharmacological properties, including anti-inflammatory, antioxidant, antidiabetic, antitumor and hepatoprotective properties. These actions, which affect oxidative stress, glucose control, and lipid metabolism, are mostly mediated via altering molecular pathways like AMPK, NF-KB, MAPK, and PI3K/Akt. This study highlights berberine's promise as a contemporary therapeutic agent by combining the most recent information on its pharmacological characteristics, pharmacokinetic constraints, formulation developments, toxicological safety, and clinical uses. Despite its high pharmacological effectiveness, berberine's limited intestinal permeability, poor water solubility, and substantial first-pass metabolism, which results in a bioavailability of less than 1%, make it difficult to employ therapeutically. Nanoparticles, liposomes, phytosomes, and self-emulsifying systems are examples of recent formulation techniques that have significantly increased stability and absorption. Good safety is confirmed by toxicological tests at therapeutic levels (300–1500 mg/day). Clinical studies support its positive effects on cardiovascular diseases, hyperlipidemia, type 2 diabetes, metabolic syndrome, and obesity. A natural substance that is safe, multi-target, and has great pharmacological potential is berberine. To reach its full potential in evidence-based pharmacotherapy, future studies should concentrate on large-scale clinical validation, synergistic combination medicines, and delivery systems based on nanocarriers

Key Words: Berberine; pharmacokinetics; bioavailability; formulation; pharmacological activity.



TURNING WASTE INTO WELLNESS: THE EMERGING ROLE OF MODIFIED PECTIN FROM FRUIT PEELS IN MODERN DRUG DELIVERY SYSTEMS

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ABSTRACT

Pectin, a biodegradable and biocompatible polysaccharide mainly extracted from citrus peels and apple pomace, exhibits unique gelling and stabilizing properties due to its degree of esterification. These characteristics have enabled its wide application in pharmaceuticals as a natural carrier for controlled and targeted drug delivery systems. Pectin has also been considered an attractive natural polymer for biomedical and pharmaceutical applications outside of food uses. Pectin is non-toxic and has suitable physicochemical properties, which has led to research into the use of pectin as a carrier for targeted and controlled delivery of drugs (particularly in gastrointestinal systems); pectin has been investigated as a matrix tablet, gel beads, and film coated dosage forms. Pectin may have health promoting properties, potential for the use in active packaging systems, and potential compatibility with other biopolymers for

the purpose of creating multifunctional materials for specific applications. Pectin has structural complexity and a variety of functions, including its crucial roles in plant growth, morphology, development, and defense.

KEYWORDS: Pectin, Natural polymers, Matrix-forming agent, Citrus peel.



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Review Article

Exploring Sunflower Oil Nanoemulsions: Properties, Applications, and Future Directions

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ABSTRACT

Sunscreens are important for shielding the skin from harmful ultraviolet (UV) radiation, which can result in sunburn, skin aging, skin cancers, among other skin conditions. However, normal sunscreens often have chemical filter components that can be absorbed by the skin leading to health problems. Besides, such filters can age with time and lose their efficacy. Due to these, there has been an increasing demand for the mission of developing better and safer sunscreen formulations. Nanoemulsions- These are colloidal formulations with finely distributed nanoparticles in two immiscible liquids. Because the cosurfactant or surfactant balances out the interfacial tension, they have great kinetic stability. Typically, nanoemulsion droplets range in diameter from 100 to 500 nm.^{1,2} Similar to the traditional emulsion, their subtypes are either biphasic [oil in water (O/W) or water in oil (W/O)]. or triphasic [Oil in water in oil (O/W/O) and water in oil in water (W/O/W)]. Both the type of surfactant and the amount of aqueous and oily phase will affect the formulation's structure and ability to trap hydrophilic or lipophilic molecules.³ Easy penetration of the stratum corneum, tiny size, controllable administration, transparency or transposition, decreased water loss, skin texture, pleasant sensation, stereochemical stability, and quick absorption are just a few of the benefits of nanoemulsions.⁴ Additionally, the U.S. FDA considers its components to be generally recognized as safe (GRAS). The compounds that are produced when nanoemulsions degrade are safe, and they are typically soluble and biodegradable. Because of their high solubility of lipophilic compounds, low concentration of surfactants, high viscosity, and capacity to adjust droplet size, nanoemulsions have become increasingly popular in cosmetic applications.

INTRODUCTION

Cosmetics Introduction

Skin beauty is closely linked to one's health, habits, skincare routine, environmental factors, and overall care. Issues like pigmentation,

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Design, Synthesis, and Mechanistic Pharmacological Evaluation of Novel Quinoline–1,3,4-Oxadiazole Hybrid Molecules as Therapeutic Agents Against Multidrug-Resistant Infections

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ABSTRACT

Background The rapid emergence of multidrug-resistant (MDR) bacterial strains poses a critical global health challenge, significantly reducing the efficacy of existing antimicrobial agents such as fluoroquinolones and β -lactams. Quinoline derivatives are well-established antimicrobial pharmacophores, while 1,3,4-oxadiazole scaffolds are known to enhance biological activity and pharmacokinetic properties. Hybridization of these two moieties offers a promising strategy to develop potent agents against resistant pathogens.

Objective To design, synthesize, and evaluate novel quinoline–1,3,4-oxadiazole hybrid molecules for their antimicrobial activity against MDR bacterial strains and to investigate their possible mechanisms of action.

Methods A series of ten quinoline–oxadiazole hybrid compounds (QO-1 to QO-10) were synthesized via cyclization of quinoline-based hydrazide intermediates under reflux conditions. The structures were confirmed using IR, ¹H NMR, ¹³C NMR, and mass spectrometry. Antimicrobial activity was assessed against MDR strains of *Staphylococcus aureus*, *Escherichia coli*, and *Pseudomonas aeruginosa* using broth microdilution method to determine minimum inhibitory concentration (MIC). Ciprofloxacin was used as a standard reference drug. Mechanistic studies included membrane permeability assay, DNA binding analysis (UV-visible spectroscopy), and DNA gyrase inhibition assay. Cytotoxicity was evaluated using MTT assay on HEK-293 cell lines.

Results All synthesized compounds exhibited moderate to significant antimicrobial activity. Among them, compounds QO-4, QO-7, and QO-9 demonstrated the most potent effects. MIC values ranged from 1.56 to 25 μ g/mL against tested strains. QO-7 showed highest activity with MIC: *S. aureus*: 1.56 μ g/mL, *E. coli*: 3.12 μ g/mL, *P. aeruginosa*: 6.25 μ g/mL, showing comparable activity to ciprofloxacin (MIC: 0.78–1.56 μ g/mL). Mechanistic evaluation revealed increased membrane permeability (up to 65% leakage of intracellular material), significant DNA binding affinity (hypochromic shift ~18%), and DNA gyrase inhibition (IC₅₀ = 2.8 μ M for QO-7). Cytotoxicity studies indicated low toxicity, with cell viability >85% at 50 μ g/mL, suggesting a favorable safety profile.

Formulation and Optimization of Gastroretentive Floating Matrix Tablets of Itopride Hydrochloride Using Box–Behnken Design

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ABSTRACT

The present study aimed to formulate and optimize gastroretentive floating matrix tablets of Itopride Hydrochloride to enhance gastric residence time and achieve sustained drug release [1]. Floating tablets were prepared using hydrophilic polymers, namely HPMC K100M and Carbopol 934P, along with sodium bicarbonate as a gas-generating agent [2]. A Box–Behnken Design was employed to evaluate the effect of formulation variables on floating lag time, total floating time, and cumulative drug release. Seventeen experimental formulations were developed and evaluated [3]. The floating lag time ranged from 42.7 to 68.3 seconds, while total floating time varied between 9.1 and 13.0 hours, indicating effective buoyancy and prolonged gastric retention. In vitro drug release studies demonstrated a sustained release profile, with cumulative drug release ranging from 78.2% to 85.0% at 12 hours. Statistical analysis revealed that all formulation variables significantly influenced the responses ($p < 0.05$), with a non-significant lack of fit confirming model adequacy. The optimized formulation, containing HPMC K100M (150 mg), sodium bicarbonate (60 mg), and Carbopol 934P (18.50 mg), exhibited a floating lag time of 42.7 seconds, total floating time of 13.19 hours, and 78.46% drug release at 12 hours, with a desirability value of 0.987. Experimental validation showed close agreement with predicted values, with percentage prediction error below 5%. The developed gastroretentive floating system of Itopride Hydrochloride offers a promising approach for sustained drug delivery, improved bioavailability, and enhanced patient compliance. Further in vivo studies are recommended to confirm its clinical performance.

Keywords: Gastroretentive Drug Delivery, Floating Tablets, Itopride Hydrochloride, Box–Behnken Design, Sustained Release, Optimization

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Introduction

Oral drug delivery remains the most widely used route of administration due to its convenience, cost-effectiveness, and high patient compliance [1].

However, conventional oral dosage forms often exhibit limitations such as rapid gastric emptying and incomplete drug absorption, particularly for drugs with a narrow absorption window [2-4]. Gastroretentive



STUDY OF COMPARATIVE ANTIHYPERTENSIVE DRUGS: INTRODUCTION WITH REFERENCES

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Abstract

Background: Hypertension is a global public health challenge and a major risk factor for cardiovascular diseases. Multiple antihypertensive drug classes, including ACE inhibitors, ARBs, beta-blockers, calcium channel blockers (CCBs), and diuretics, are available for managing hypertension. However, their comparative efficacy, safety, and cost-effectiveness vary across patient populations.

Objectives: This study aims to analyze and compare the efficacy, safety, and cost-effectiveness of various antihypertensive drug classes to guide clinical decision-making.

Methods: A systematic review of 47 studies, including randomized controlled trials, meta-analyses, and observational studies, was conducted. Key outcomes such as blood pressure reduction, incidence of adverse effects, patient adherence, and cost-effectiveness were analyzed.

Results: ACE inhibitors and ARBs were highly effective for first-line treatment, especially in patients with diabetes and chronic kidney disease. CCBs demonstrated superior efficacy in elderly patients with isolated systolic hypertension, while diuretics were the most cost-effective option. ARBs had the best safety profile, with fewer adverse effects than ACE inhibitors and beta-blockers. Combination therapies improved long-term control and adherence.

Conclusion: Personalized treatment strategies considering efficacy, safety, cost, and patient adherence are essential for optimizing hypertension management. Future research should explore long-term outcomes and newer antihypertensive drugs.

Keywords: Hypertension, Antihypertensive drugs, ACE inhibitors, ARBs, Calcium channel blockers, Diuretics, Blood pressure, Patient adherence, Cost-effectiveness



“Navigating the Future: A Comprehensive Review on Nanorobots in Therapeutic Applications”

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Abstract

Nanorobots represent a new field of nanomedicine, offering novel methods for targeted drug delivery, diagnostics, and minimally invasive treatment. These tiny devices can navigate complex biological environments, detect diseased tissues, and precisely and regulated by administer medication. When biohybrid designs, advanced materials, and artificial intelligence are combined, they become more precise, effective, and adaptable. This study explores the mechanics, applications, advantages, most recent advancements, and future prospects of nanorobots in drug therapy to demonstrate their potential to revolutionize modern medicine. There is discussion of possible strategies for overcoming challenges like clinical translation, biocompatibility, moral dilemmas, and manufacturing complexity. In the end, nanorobotic technology may usher in a new era of personalized, responsive, and intelligent healthcare systems.

Keywords

Nanorobots, Drug Delivery, Nanomedicine, Artificial Intelligence, Targeted Therapy, Biomedical Applications

Introduction

The Greek word "dwarf" is the root of the English term "nano." Physicist Richard Feynman, who won the Nobel Prize, introduced the idea of nanotechnology in his 1959 speech "There's plenty of room at the bottom."¹ The talk concluded with him saying, "this is a development that I believe is unavoidable. Human civilization has seen a radical transformation in the last several decades due to mechanical and robotic technology."² Additionally, modern micro- and nanotechnology has

Design And Synthesis Of Chalcone Derivatives As Antidiabetic And Anticancer Agents

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ABSTRACT

Chalcones, an important class of natural and synthetic flavonoid precursors, have gained considerable attention in medicinal chemistry due to their wide spectrum of pharmacological activities, including antidiabetic and anticancer properties. Their simple chemical structure, ease of synthesis, and structural versatility make them attractive scaffolds for drug development. In this study, a series of novel chalcone derivatives were rationally designed and synthesized with the aim of exploring their dual therapeutic potential against diabetes and cancer. The synthesis of the target compounds was accomplished through the Claisen–Schmidt condensation reaction, involving various substituted aromatic aldehydes and ketones under optimized reaction conditions. This approach enabled the formation of structurally diverse chalcone analogs with different functional groups. The synthesized compounds were purified and characterized using standard analytical techniques such as Fourier Transform Infrared Spectroscopy (FT-IR), Nuclear Magnetic Resonance (¹H and ¹³C NMR), and mass spectrometry, confirming their chemical structures and purity. The biological evaluation of these derivatives demonstrated promising results. Several compounds showed significant inhibitory activity against key carbohydrate-hydrolyzing enzymes, namely α -amylase and α -glucosidase, which are crucial targets in the management of postprandial hyperglycemia in diabetes. These findings suggest their potential application as effective antidiabetic agents. In addition, the synthesized chalcone derivatives were screened for in vitro anticancer activity against selected human cancer cell lines. Notably, some compounds exhibited potent cytotoxic effects with good selectivity toward cancer cells, indicating their therapeutic relevance. Structure–activity relationship (SAR) analysis revealed that both electron-donating and electron-withdrawing substituents on the aromatic rings significantly influenced the biological activity of the compounds. Substituent position and type played a critical role in enhancing enzyme inhibition and anticancer efficacy. In conclusion, the present study highlights the potential of chalcone derivatives as multifunctional therapeutic agents with dual antidiabetic and anticancer activities. These findings provide a strong foundation for further investigations, including molecular docking studies, in vivo pharmacological evaluations, and toxicity assessments, to advance these compounds toward clinical development.

KEYWORDS: Chalcone derivatives, Claisen–Schmidt condensation, Antidiabetic activity, Anticancer activity, α -amylase inhibition, α -glucosidase inhibition, Cytotoxicity, Structure–activity relationship (SAR), Flavonoid precursors, Drug design.

INTRODUCTION

The increasing global burden of chronic diseases such as diabetes mellitus and cancer has become a major public health concern, necessitating the development of novel therapeutic agents with improved efficacy and safety profiles. Diabetes mellitus, a metabolic disorder characterized by persistent hyperglycemia, arises due to impaired insulin secretion, insulin resistance, or both. It is associated with severe long-term complications, including cardiovascular diseases, neuropathy, nephropathy, and retinopathy. On the other hand, cancer remains one of the leading causes of mortality worldwide, involving uncontrolled cell proliferation, invasion, and metastasis[1]. Despite significant advancements in treatment strategies, current therapies for both diseases often suffer from limitations such as side effects, drug resistance, and high costs. Therefore, there is an urgent need to explore new chemical entities that can simultaneously target multiple pathological pathways. In recent years, naturally derived compounds and their synthetic analogs have gained considerable attention in drug discovery due to their structural diversity and biological compatibility. Among these, chalcones represent an important class of open-chain flavonoids characterized by the presence of a 1,3-diphenyl-2-propen-1-one framework. Chalcones serve as key intermediates in the biosynthesis of flavonoids and isoflavonoids and are widely distributed in edible plants, fruits, and vegetables. Their simple chemical structure, ease of synthesis, and ability to undergo various chemical modifications make them highly attractive scaffolds for the development of pharmacologically active compounds[2][3]. Chalcone derivatives have been



**INTERNATIONAL JOURNAL OF RESEARCH AND
ANALYTICAL REVIEWS (IJRAR) | IJRAR.ORG**
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A REVIEW ON POLYHERBAL TEA CUBES FOR STRESS RELIEF USING ASHWAGANDHA, TULSI, BUTTERFLY PEA FLOWER, AND JAGGERY

Gayatri Sanjay Kale¹, Vaishnavi Narayan Kale¹, Ms.Dipali Kulkarni^{2*},

Dr.S.S.Angadi³

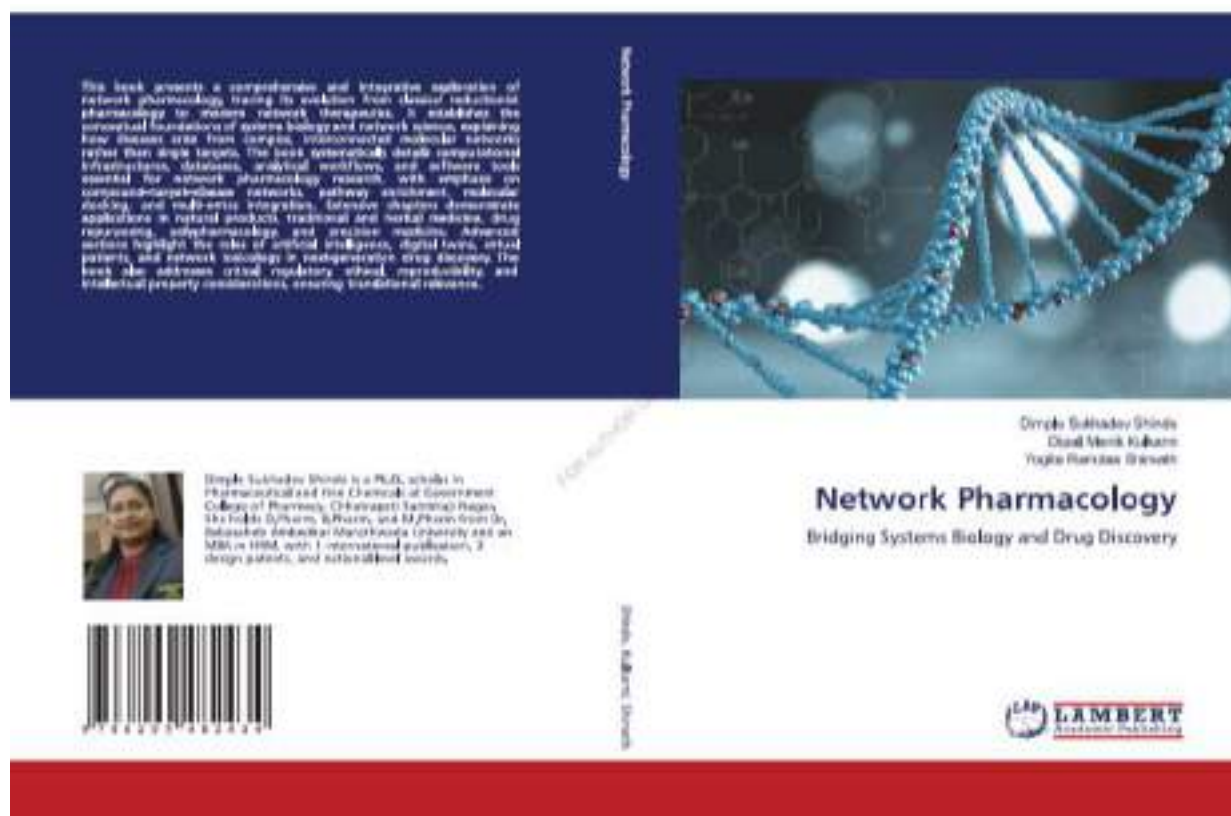
¹Student, ¹Student, ²Asst Professor, ³Principal Dept of Pharmacology

Dr.Babasaheb Ambedkar Marathwada University, Aurangabad, Maharashtra,

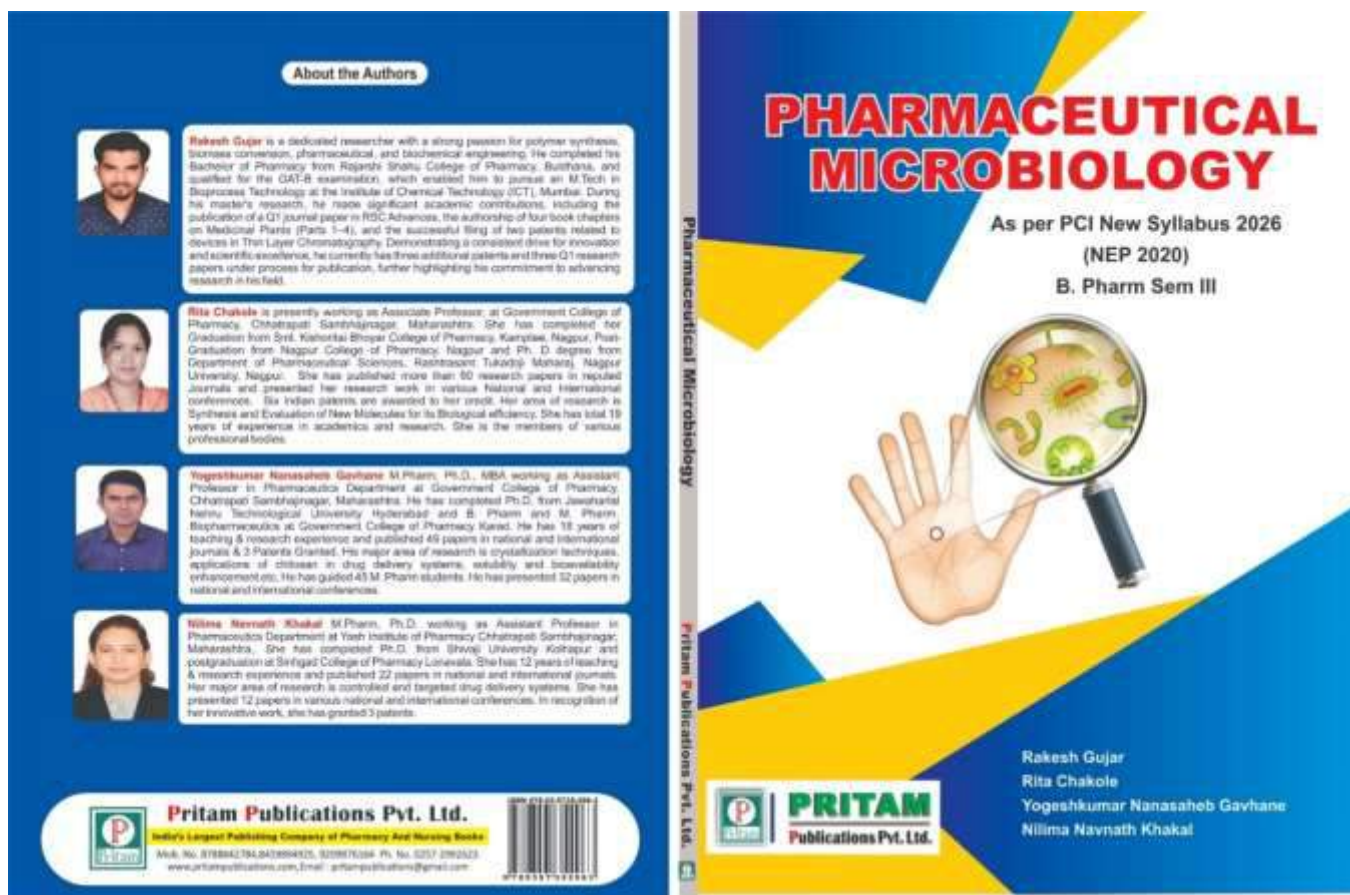
1.Abstract:

Chronic stress has become a major hazard to both physical and mental health in today's fast-paced society, causing oxidative damage, neuroendocrine dysregulation, and cognitive impairment. Traditional treatments frequently focus on discrete symptoms, failing to adequately address complex stress processes. A new, complementary, and user-friendly nutraceutical strategy is represented by polyherbal tea cubes that include ashwagandha (*Withania somnifera*), tulsi (*Ocimum sanctum*), butterfly pea flower (*Clitoria ternatea*), and jaggery. This novel delivery method combines cutting-edge formulation science with age-old Ayurvedic knowledge to provide multi-target adaptogenic, antioxidant, neuroprotective, and cognitive-enhancing benefits in a single, portable cube. Butterfly Pea improves memory and neurotransmitter balance, Tulsi offers immunomodulatory and neuroendocrine support, Ashwagandha regulates the HPA-axis and cortisol, and jaggery serves as a stabilizer, bioavailability booster, and natural sweetness. The 1+1>2 principle is demonstrated in herbal pharmacology, where the synergistic interaction of these botanicals increases potency beyond their individual contributions. The cube format is ideal for the markets for functional beverages and on-the-go wellness due to its controlled release, thermal stability, and sensory appeal. This study clarifies mechanisms of action, formulation techniques, standardization, stability, and future possibilities while emphasizing the need for clinical validation, regulatory compliance, and scalable production. Polyherbal tea cubes represent a paradigm shift in stress treatment by fusing evidence-based phytotherapy with modern convenience, sustainability, and consumer-focused design. By combining traditional wisdom with the demands of contemporary living, they offer a revolutionary approach to holistic wellbeing.

Keywords: Butterfly Pea Flower , Tulsi , Polyherbal Tea Cubes, Ashwagandha, jaggery.

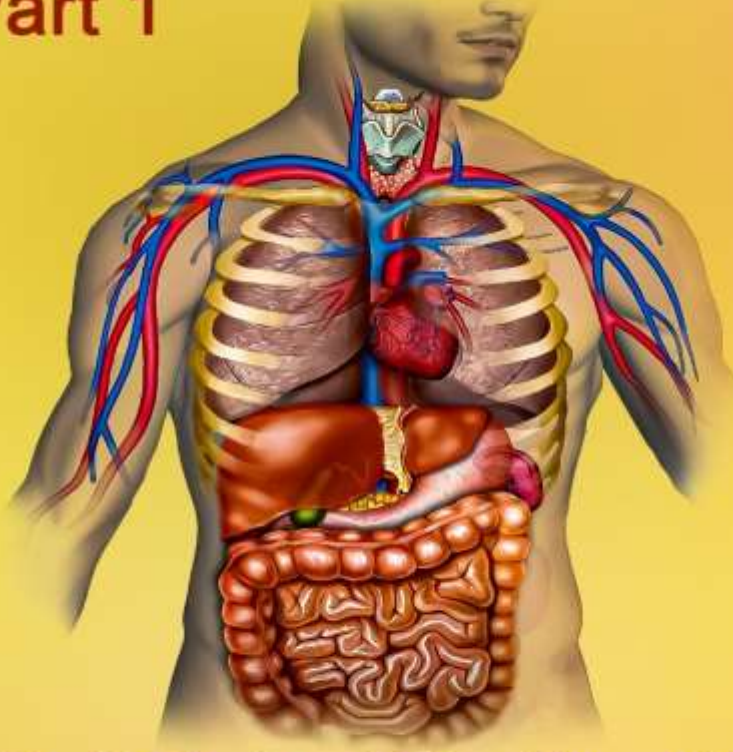


Book Authored by Faculty members 1. Mrs. D.M.Kulkarni 2. Ms. Y.R. Shirsath



Book Authored by Faculty member 3. Dr. N.M. Khakal

TEXTBOOK OF
HUMAN
ANATOMY AND
PHYSIOLOGY
Part 1

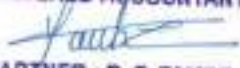


Dr. Manoj S. Charde
Dr. Ritu M. Charde

Mr. Yogeshkumar N. Gavhane
Ms. Nilima N. Khakal

Book Authored by Faculty member 4. Dr. N.M. Khakal

Other funded Projects:
CSR Fund by ICPA Health Products Mumbai
Utilization Certificate

Format No. : ADMN-PR29-F003/V00 Ver 1.02-April-2025		
	Smt. Taisaheb Kadam Sevabhavi Foundation & Research Center, Sonai's YASH INSTITUTE OF PHARMACY AURANGABAD (CHHATRAPATI SAMBHAJI NAGAR) Accredited with Grade B++ by NAAC Approved by Pharmacy Council of India, New Delhi. Permanently affiliated to Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajnagar	 DTE code : PH2153
Ref.	Date :	
UTILIZATION CERTIFICATE		
This is to certify our Institute has received a sum of Rs. 2,74,753/- (Two lacs seventy four thousand and seven hundred fifty three only) towards conduct of 12 weeks, 96 hours duration skill development program on " Pharmaceutical Quality Control" under Corporate Social Responsibility of ICPA health products, Mumbai as per Memorandum of Understanding between Yash Institute of Pharmacy, Chhatrapati Sambhajnagar and ICPA health products, Mumbai. We wish to state entire amount of Rs. 2,74,753/- (Two lacs seventy four thousand and seven hundred fifty three) has been spent towards conduct of Skill Development Program on Pharmaceutical Quality Control (between August 2025 to November 2025) as per the attached details of expenses sheet.		
 Principal Yash Institute of Pharmacy Chhatrapati Sambhajnagar	FOR S. M. SHERKAR & CO. CHARTERED ACCOUNTANTS  PARTNER : R. P. TAMBE M.NO. 181676, FRN : 114096W UDIN - 25181676 BMHBC0943 2 	
		
South City, Waluj Road, Chhatrapati Sambhajnagar, Phone No.: 02402551763 Email.: yashpharmacy1@gmail.com Postal Address : P.O. Box No. 968 Bajaj Nagar, Waluj, Chhatrapati Sambhajnagar. 431 136 Web.: yashpharmacy.org		



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Date: 03/12/2025

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Sincerely,
SBI RTGS Team

Amount Received

Other funded Projects

Student Development cell Dr. Babasaheb Ambedkar Marathwada University, CSN

1. Dr. C.V. Raman Lecture Series Fund Rs. 10000/-

Students

डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, छत्रपती संभाजीनगर.
(नेक्स्टोर A+ दर्जा)
विद्यार्थी विकास

संचालक (वद.) : २४०३१३३
विद्यार्थी विकास : २४०३१३३
फोन : (०२४०३) २४०३१३३, २४०३१३०
मार्ग : बाधुमिनी
Web Site : www.bamu.ac.in
E-Mail : dsu@bamu.ac.in

डॉ. केशव संभु
संचालक,
विद्यार्थी विकास मंडळ
विद्यार्थी परिषद,
छत्रपती संभाजीनगर - ४३१ ००५
(महाराष्ट्र)
मो. क्र. : ९४८८१६५३३१
दिनांक : २७.१३.२०२५

सदर्थ / सविधि/२०२५-२६/२४२८१-८५

प्रति,
मा. प्राचार्य,
यास इन्स्टीट्यूट ऑफ मॅनेज्मेंट,
छत्रपती संभाजीनगर

विषय : डॉ. बी. पी. रमण व्याख्यानमाला आयोजित करण्याबाबत...

महोदय,

उपरोक्त विषयान्वये अनुसूचित आरक्षण कक्षाविषयात दोन डॉ. मेडलियम टाईप २०२५-२६ करिता मा. कुलसचिव महोदयांनी नविन केलेल्या समितीने आपाप्या महाविद्यालयात डॉ. बी. पी. रमण व्याख्यानमाला आयोजित करण्यासाठी रु. १०,०००/- (अक्षरी दहा हजार रुपये फक्त) अनुदान एककम मंजूर करण्यात आली आहे. उपरोक्त व्याख्यानमाला महाविद्यालयात आयोजित करून देवके तसेच केव्हापर उपरोक्त महाविद्यालयाच्या खाते क्रमांकावर मंजूर करण्यात आलेली एककम (आरटीजीएस) द्वारे वाटविण्यात येईल.

टीप : कार्यक्रमाचा अहवाल, मूळ बील, रु. १,०००/- परीन खाच/प्रीलाफरिफा ऑनलाईन स्टेटमेंट किंवा घनादेशाची इलेक्ट्रॉनिक जोडणी. जीएमसी फिलासह प्रुटिलाईजेसन सर्टिफिकेट दि. २६ फेब्रुवारी २०२६ पर्यंत विद्यार्थी विकास मंडळ कार्यालय, छत्रपती संभाजीनगर येथे प्रत्यक्ष सादर करणे बंधनकारक आहे. दि. ०१ मार्च २०२६ नंतर देवके सवीकारली जाणार नाहीत.

संचालक
विद्यार्थी विकास मंडळ

Audited Utilization Certificate
Financial Year 2025-26

1. **Name of Institute:** Yash Institute of Pharmacy, Chhatrapati Sambhajnagar
2. **Name of the Scheme under which Grant was sanction:** Students Development,
Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajnagar,
Sponsored.
3. **Sanction Order No.:** 2025-26/24281-87
4. **Sanctioned date:** 27/10/2025
5. **Sanctioned amount:** 10,000/-

Certified that out of Rs. 10,000/- sanctioned by Students Development Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajnagar towards financial assistance during the financial year 2025-26, for conducting one "Dr. C.V. Raman Lecture Series" from 15 December 2025 to 10 January 2026, an amount of Rs. 10000.00/- (Ten thousand only) was utilized.

I have satisfied myself that the conditions on which the grant-in-aid was sanctioned has been duly fulfilled and that I have exercised the following checks to see that the money was actually utilized for the purpose for which it was sanctioned.

Signature of Chartered Accountant
Name of CA :
Membership No. :
Full Address :



FOR S. M. SHERKAR & CO.
CHARTERED ACCOUNTANTS

PARTNER : A. P. JAMSE

M.NO. 181675, FRN : 114098W

UDIN : 2618167625C0KZ4070



Signature of Head of the Institute
Name: Dr. S. S. Angadi
Designation: Principal
Full Address:

Yash Institute of Pharmacy,
South City, Cidco Mahanagar-2
Aurangabad 431136

Principal

Yash Institute of Pharmacy
Chhatrapati Sambhajnagar

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Ruppes रुपये		Ten Thousand Only	
		₹	*** 10000=00
A/c No. 20060500140		FAO DR BAMU NON SALARY	
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		Authorised Signatory(ies)	
A/c Payee Only		Please sign above	
11*1919631* 4310140101 00008711* 11			

Amount reimbursed

2. One day Environmental Conservation Training Fund Rs. 10000/-

22

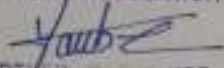
Audited Utilization Certificate
Financial Year 2025-26

1. **Name of Institute:** Yash Institute of Pharmacy, Chh. Sambhajinagar
2. **Name of the Scheme under which Grant was sanction:** Dr. Babasaheb Ambedkar Marathwada University, Chh. Sambhajinagar, Sponsored.
3. **Sanction Order No.:** 2025-26/24345-24352
4. **Sanctioned date:** 28/10/2025
5. **Sanctioned amount:** 10,000/-

Certified that out of Rs. 10,000/- sanctioned by Dr. Babasaheb Ambedkar Marathwada University, Chh. Sambhajinagar towards financial assistance during the financial year 2025-26, for conducting one day "Environmental Conservation Training" on 6th December 2025, an amount of Rs. 10,225.80/- (Ten thousand two hundred twenty five rupees eighty paise) was utilized.

I have satisfied myself that the conditions on which the grant-in-aid was sanctioned have been duly fulfilled and that I have exercised the following checks to see that the money was actually utilized for the purpose for which it was sanctioned.

FOR S. M. SHERKAR & CO.
CHARTERED ACCOUNTANTS


PARTNER : S. M. SHERKAR
M.NO. 101678, FRN : 114098W
UDIN : 2618167612A6FS8676

Signature of Chartered Accountant
Name of CA :
Membership No. :
Full Address :



Signature of Head of the Institute

Name: Dr. S. S. Angadi

Designation: Principal

Full Address:

Yash Institute of Pharmacy,

South City, Cideo Mahanagar-2

Aurangabad 431136

Principal

Yash Institute of Pharmacy
Chhatrapati Sambhajinagar



Bank of Maharashtra
Under Rs. ***10,001/-

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AURANGABAD
SHAWRI MAHIL CH SAMBHAJINAGAR
CHHATRAPATI SAMBHAJINAGAR 431104
IFSC Code : MAHB000152

Valid for 3 Months 20-02-2025

Pay अदा करे PRINCIPAL YASH INSTITUTE OF PHARMACY CHH. SAMBHAJINAGAR Or Bearer
Ruppes रुपये Ten Thousand Only या धारक को
₹ *** 10000=00
A/c No. 20060500140
Payable at per at all the branches of Bank of Maharashtra.
FAO DR BAMU NON SALARY
Deputy Registrar/F.A.O.
Authorised Signatory(ies)
A/c Payee Only

Amount reimbursed

IPR

Design Application Details

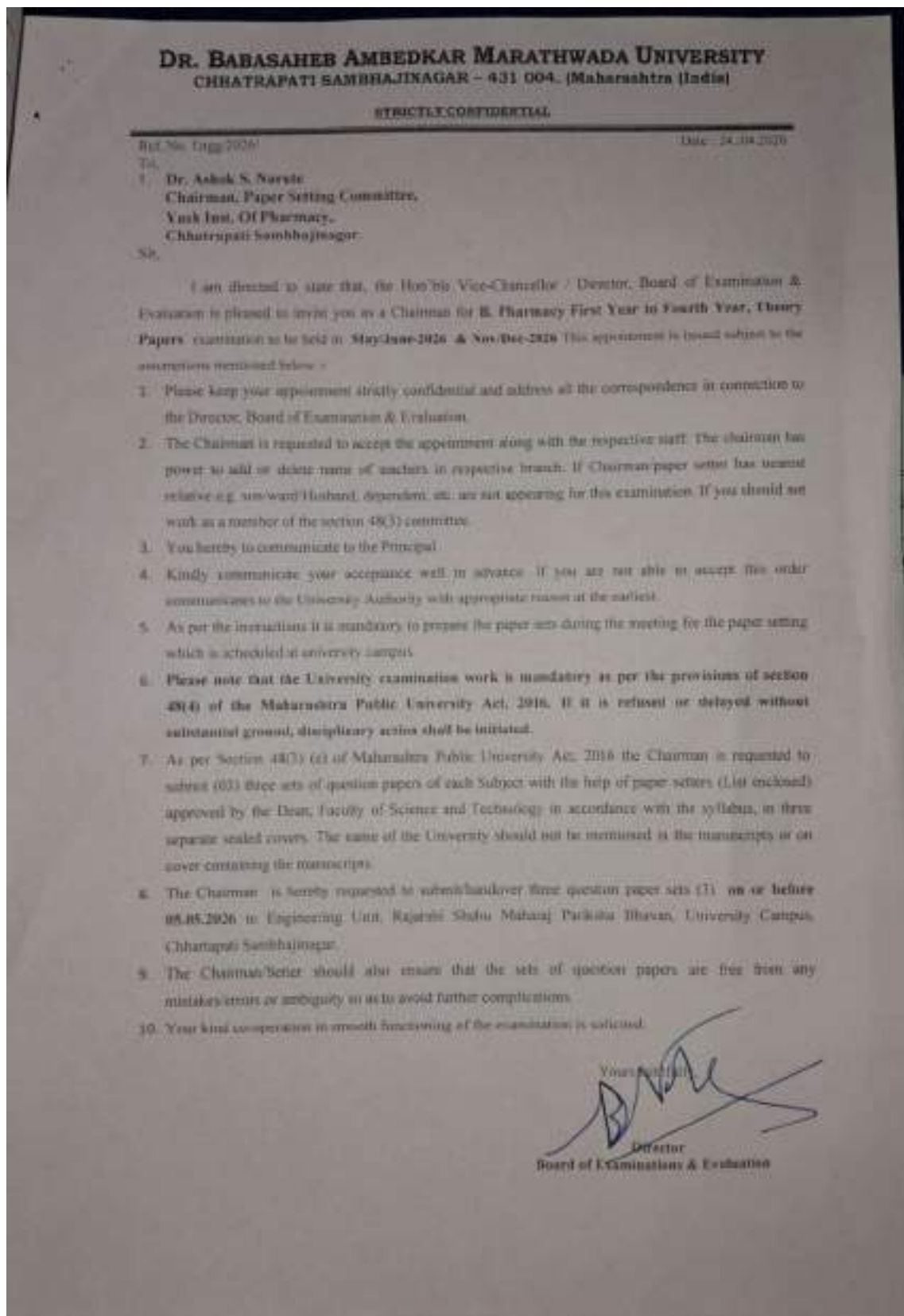
Application Number: 486669-001
CBR Number: 200618
CBR Date: 09/01/2026 07:15:52
Applicant Name:
1. Ms. Chhaya Shankarrao Ambad
2. Ms. Karuna Rameshwar Ghodki
3. Mr. Akash Devidas Palkar
4. Apexa Udesangbhai Gohil
5. Mohini N Rathod
6. Niravsinh M. Rathod
7. Sana Tahreem Molez Shaikh
8. Mr. Krishna Gokul Beldar

Design Application Status

Application Status: Application Accepted, Certificate of Design not Generated.

Back

Ms. Sana Shaikh



Dr. A.S.Narute Chairman Paper Setting



Dr. S,S, Angadi Judge of Pharma Anveshan at MGM University CSN



Dr. S,S, Angadi Two Days national Level Seminar at Sonai



Resource Person for FDP



Govt. College of Pharmacy, Amravati-444604 Maharashtra India

In Aegis With Internal Quality Assurance Cell (IQAC)

One Week Online Faculty Development Program On

"Viksit Bharat 2047 and Technical Education"

Academic Entrepreneurship, Innovative Research, Artificial Intelligence, and Smart Pedagogy

23 - 28 Mar 2026



CERTIFICATE

This is to certify that **Kulkarni Dipali Manik** has participated in One Week Online Faculty Development Program On **Viksit Bharat 2047 and Technical Education 23 - 28 Mar 2026** organised by **IQAC, Govt. College of Pharmacy, Amravati, Maharashtra.**


Dr. Sharada L. Deore
Co-coordinator


Dr. Bhushan A. Baviskar
Coordinator


Dr. N. N. Inamdar
Principal & Convener

Made for free with Certify'em

Mrs D.M. Kulkarni FDP Certificate





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with a consolidated score of 86 %





Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



(Jul-Oct 2023)

Roll No: NPTEL25HS110G10G1000591 Duration of NPTEL course : 12 Weeks

The candidate has studied the above course through MOOCs mode, has submitted online assignments and passed proctored exams.
This certificate is therefore acceptable for promotions under CAS as per AICTE notifications dated 18th Nov, 2023, similar to other refresher / orientation courses.
F.No. AICTE / RIFD / FDP through MOOCs / 2023

Dr. G.A.Vaishnav NPTEL AICTE FDP Certificate



NPTEL-AICTE Faculty Development Programme

(Funded by the MoE, Govt. of India)



This certificate is awarded to

DIPALI MANIKRAO KULKARNI

for successfully completing the course

Inclusive Education

with a consolidated score of 83 %





Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras



(Jul-Oct 2025)

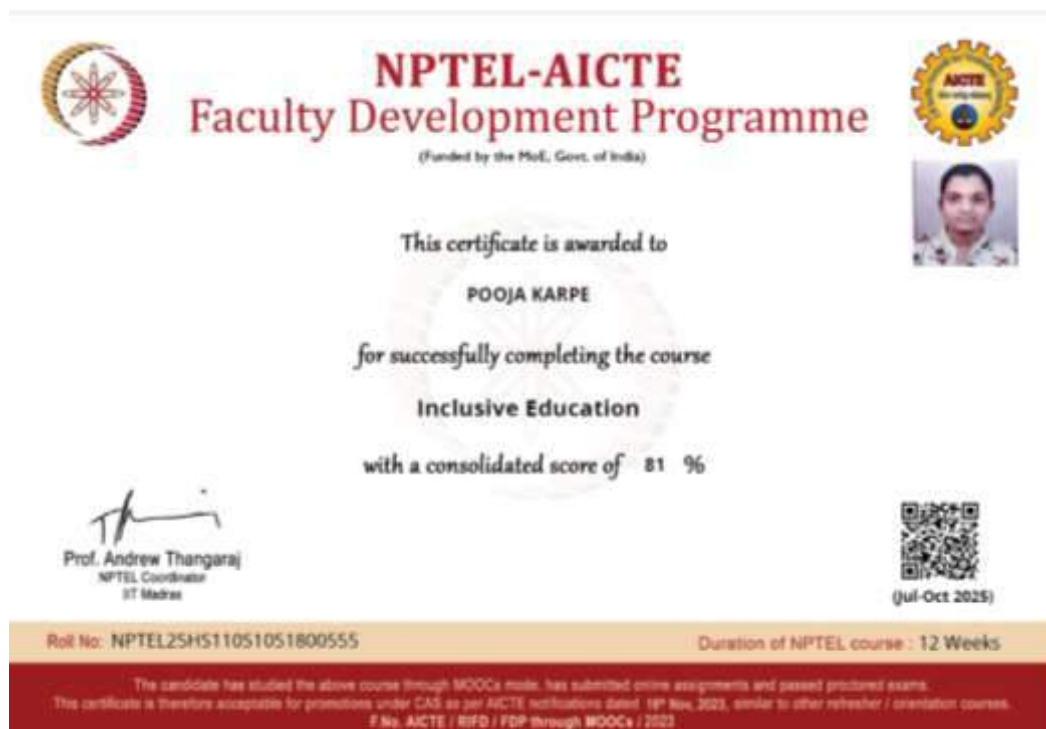
Roll No: NPTEL25HS110S951800074 Duration of NPTEL course : 12 Weeks

The candidate has studied the above course through MOOCs mode, has submitted online assignments and passed proctored exams.
This certificate is therefore acceptable for promotions under CAS as per AICTE notifications dated 18th Nov, 2023, similar to other refresher / orientation courses.
F.No. AICTE / RIFD / FDP through MOOCs / 2023

NPTEL AICTE FDP Certificate D.M.kulkarni



A.S.Joshi NPTEL- AICTE FDP



NPTEL AICTE FDP Certificate Ms. P.A.Karpe

Govt. College of Pharmacy, Amravati-444604 Maharashtra India

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One Week Online Faculty Development Program On

"Viksit Bharat 2047 and Technical Education"

Academic Entrepreneurship, Innovative Research, Artificial Intelligence, and Smart Pedagogy

23 - 28 Mar 2026



CERTIFICATE

This is to certify that **Ms. POOJA ASHOKRAO KARPE** has participated in
One Week Online Faculty Development Program On **Viksit Bharat 2047**
and Technical Education 23 - 28 Mar 2026 organised by IQAC, Govt.
College of Pharmacy, Amravati, Maharashtra.

Dr. Sharada L. Doore
Co-coordinator

Dr. Bhushan A. Daviskar
Coordinator

Dr. N. M. Inamdar
President & Convener

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(Approved by Govt. of Maharashtra, Affiliated to SPPL, Approved by AICTE, DTE CODE - 6622)

CERTIFICATE OF PARTICIPATION

This certificate is proudly presented to **Dr. Sumaiya Zubair Khan**
from **Yash institute of pharmacy chh. Sambhajinagar**

has successfully completed the International Level one-week FDP (Online)
on **"Effective Research Paper Writing: Principles and Practices"** organized
by the Research & Development Cell, PCCOE&R from 27th to 31st January,
2026.

DR. SHIVGANGA GAVHANE
FDP Coordinator

DR. KISHOR BHANGALE
FDP Coordinator

DR. SUDARSHAN BOBADE
Convener & Dean R&D

DR. HARISH U. TIWARI
Director, PCCOER

Dr. S.Z. Khan FDP Certificate







ASSOCIATION OF PHARMACEUTICAL TEACHERS OF INDIA (APTI)
MAHARASHTRA STATE BRANCH

MAHA-APTICON-2025

Empowering Teachers by Unlocking their Potential



Certificate of Participation

This is to certify that

Mrs. Shirsath Yogita Ramdas

*has participated as a delegate in the Maha-Apticon-2025
Conference held at Chh. Sambhajnagar on 15th February 2025.
His / Her active participation is highly appreciable*



Dr. Rakesh Somani
President APTI-MS



Dr. Prashant Shankarwar
Chairman DDC



Dr. Swaroop Lahoti
Organizing Secretary

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY
CHHATRAPATI SAMBHAJINAGAR - 431 004. (Maharashtra (India))

STRICTLY CONFIDENTIAL

Date :01.10.2025

Ref. No. Engg/2025-26/

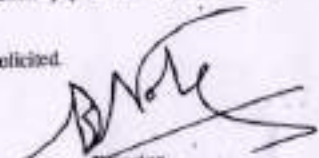
To,

1. **Dr. Ashok S. Narute**
Chairman, Paper Setting Committee,
Yash Inst. Of Pharmacy,
Chhatrapati Sambhajinagar.

Sir,

I am directed to state that, the Hon'ble Vice-Chancellor / Director, Board of Examination & Evaluation is pleased to invite you as a Chairman for **B. Pharmacy First Year to Fourth Year**, theory examination to be held in **Nov/Dec-2025 & May/June-2026**. This appointment is issued subject to the assumptions mentioned below :-

1. Please keep your appointment strictly confidential and address all the correspondence in connection to the Director, Board of Examination & Evaluation.
2. The Chairman is requested to accept the appointment alongwith the respective staff. The chairman has power to add or delete name of teachers in respective branch. If Chairman/paper setter has nearest relative e.g. son/ward/Husband, dependent, etc., are not appearing for this examination. If you should not work as a member of the section 48(3) committee.
3. You hereby to communicate to the Principal.
4. Kindly communicate your acceptance well in advance. If you are not able to accept this order communicates to the University Authority with appropriate reason at the earliest.
5. As per the instructions it is mandatory to prepare the paper sets during the meeting for the paper setting which is scheduled at university campus.
6. Please note that the University examination work is mandatory as per the provisions of section 48(4) of the Maharashtra Public University Act, 2016. If it is refused or delayed without substantial ground, disciplinary action shall be initiated.
7. As per Section 48(3) (c) of Maharashtra Public University Act, 2016 the Chairman is requested to submit (03) three sets of question papers of each Subject with the help of paper setters (List enclosed) approved by the Dean, Faculty of Science and Technology in accordance with the syllabus, in three separate sealed covers. The name of the University should not be mentioned in the manuscripts or on cover containing the manuscripts.
8. The Chairman is hereby requested to submit/handover three question paper sets (3) on or before **20.10.2025** to Engineering Unit, Rajarshi Shahu Maharaj Pariksha Bhavan, University Campus, Chhatrapati Sambhajinagar.
9. The Chairman/Setter should also ensure that the sets of question papers are free from any mistakes/errors or ambiguity so as to avoid further complications.
10. Your kind co-operation in smooth functioning of the examination is solicited.


Director
Board of Examinations & Evaluation

The required staff for Grievance Redressal Mechanism is allowed under the scheme of D-CAS Center may please be appointed from the various university departments. If the departments staff not available that time remuneration will be applicable as per rule.

I am, therefore, to request you to kindly go through the scheme. Moreover, the concerned Officer/Staff of the examination branch will provide you any other information required or will also solve the difficulties if any in day to day work.

Note - Please take over the charge of D-CAS Director as early as possible.

Yours sincerely,



Director
Board of Examination
& Evaluation

- Copy to 1. The Principal, Yash College of Pharmacy, Waluj, Dist- Chhatrapati Sambhajnagar.
2. Section Officer, Engineering Unit Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajnagar for information and necessary action.

Dr. Babasaheb Ambedkar
Marathwada University
Chhatrapati Sambhajnagar Maharashtra
(India)

NAAC Re-accredited A Grade

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डॉ. बाबासाहेब आंबेडकर

मराठवाडा विद्यापीठ

छत्रपती संभाजीनगर-४३१००४, महाराष्ट्र (भारत)
नैऋत्य दिशेने अग्रगण्य

Office : Director, Board of Examination
& Evaluation

पदोन्नत : संचालक, परीक्षा बोर्ड, मूल्यांकन मंडळ

DATE : 26.11.2025

REF.: Exam/Co-ord/ Nov-Dec 2025/ 1076-82

To,

Dr. Ashok Narute

Yash Institute of Pharmacy,

Wajur,

Chhatrapati Sambhajnagar

Subject : Appointment as Director Pharmacy D-CAS Centre for the Examination
November/December 2025

Sir,

I am glad to inform you that the Hon'ble Vice-Chancellor is pleased to Appoint you as Director at the P.G. D-CAS Centre-1 For the Examination to be held in November/December 2025. I am, therefore, to request you to kindly accept the above assignment and forward your acceptance at the earliest.

I am further to state that the assessment of the answer books of **Pharmacy** Courses will have to be done at the D-CAS Center. Approximately 20000 to 40000 answer books will be received by the D-CAS Center for assessment.

A copy of the scheme of the D-CAS Centre along with the list of the approved staff to be appointed and the various heads of expenditure that can be incurred under the scheme and assessment programme are enclosed for your information and ready reference. The actual work of the assessment will have to be done at the **Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajnagar** where all the facilities are available.

It is pointed out here that the scheme of Moderation is to be undertaken during the D-CAS Scheme. The said scheme may please be followed as per the guidelines / Ordinance enclosed herewith.

The necessary formats of the printed stationery etc will be supplied to you shortly. The working of the D-CAS Centre will have to start from 27.11.2025.

It is pertinent to point out here that as provided under Section - 17 (5) (j) of the Maharashtra Public Universities Act 2016, it is mandatory on the University to Declare the results of every examination within 30 days and in any case latest within 45 days as provided in section 89 and in case of delay or the unable to finally declare the result within the aforesaid period of 45 days, the university has to send a report, incorporating the detailed reasons for such delay, to the Chancellor and to the State Government. In view the said strict provision, I am to request you to make necessary efforts to complete the work of evaluation of answer books allotted to your Centre atleast within 25 days from the last date of examination and if for any reason it is unable on your part to adhere to the said date please arrange to submit the report, indicating the reason (s), if any, there of.

You are aware that the University has introduced a scheme of Grievance Redressal Mechanism from March/April 2008 examination, under scheme, the examinees are provided photocopies of the answer books on their demand. There is a time limit prescribed for issuance of photocopies of answer books to the candidates and hence after the result of examination is declared the concerned functionaries of your D-CAS Center may please be directed to supply urgently the original answer books required under the Grievance Redressal Mechanism. Further, you will be assigned the work related to evaluation of answer books under Grievance Redressal Mechanism for the above mentioned examinations.

